



## Psychological Capital Research in Social Sciences: A Bibliometric Analysis

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### Abstract

This study aims to identify the publications on psychological capital in social sciences and to identify the features of these publications. Firstly, the Social Sciences Citation Index database was searched for all the publications on “psychological capital” in social sciences. Web of Science categories were selected for social sciences related disciplines to retrieve the most related papers. The retrieved publications were examined in relation to their citations, citation links, co-occurrences of author keywords, bibliographic coupling of the journals, bibliographic coupling of the countries, bibliographic coupling of the authors, bibliographic coupling of the publications, and bibliographic coupling of the institutions. CitNet Explorer and VOS Viewer software were used to visualize and further analyze the characteristics of those publications. A total of 288 publications were retrieved and examined in “psychological capital” literature between 2003 and 2018. Each year has a different number of publications, but the number of research on this concept increased after 2013. “Positive organizational behavior”, “well-being”, “work engagement”, “job satisfaction”, “authentic leadership”, “job performance”, “hope”, “stress”, “optimism”, “resilience”, “leadership”, “performance”, “burnout”, “efficacy”, “subjective well-being”, “leader-member exchange”, and “psychological well-being” were the most studied concepts in the aspect of their relationships with PsyCap. Journal of Leadership & Organizational Studies has been the top journal, University of Nebraska has been the top institution, and Luthans, F. has been the strongest author in this field. The USA has been the most important country in this field. The research trend and the progress of the concept of psychological capital have been discussed in the paper.

**Keywords:** Psychological capital, bibliometric analysis, bibliographic coupling.



## Introduction

Recent studies showed that psychological capital is an essential element of the psychological well being of individuals and has a positive effect on the positive attitudes and behaviors in the workplace. Psychological capital has been taken up by various disciplines in social sciences from different points of view (Luthans and Youssef, 2004). This very popular concept was originally derived from the concept of “positive organizational behavior”. Positive organizational behavior was defined by Luthans (2002a) as; "*the study and application of positively oriented human resource strengths and psychological capacities that can be measured, developed, and effectively managed for performance improvement in today's workplace*". The researchers tried to measure this concept and examine its effect on attitudinal and behavioral outcomes (Luthans, 2002b; Ozfidan, & Burlbaw, 2017).

Psychological capital is a psychological resource that strengthens an individual's resiliency and gives hope on the current situation and future. It is different from other types capitals examined in social sciences such as; human capital (experience, knowledge, skills and abilities), social capital (relationships), and intellectual capital (intangibles of an organization) (Luthans and Youssef, 2004).

The dimensions of the positive psychological constructs have been identified such as; *hope, resilience, optimism, and self-efficacy*, and the combination of these four structures is called as *psychological capital or PsyCap* (Luthans & Youssef, 2004; Luthans et al. 2007a). This multidimensional psychological construct has been defined as "*an individual's positive psychological state of development*" and each sub-dimension is explained as;

(1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success (Luthans et al., 2007b, p. 3).

This study aims to determine all types of publications on psychological capital in social sciences and to analyze the features of those publications to make contributions on the further development of this area. This study uses “bibliometric analysis” to examine the various features of those publications.



Pritchard (1969) was the one who first defined the “bibliometrics” term as “the application of mathematical and statistical methods to books and other media of communication”. This method can be used to reach a deeper understanding of the research items in a specific field by classifying the publications according to various features of them such as; authors, countries, sources, citations, institutions, subject matters, titles, keywords. In a more advanced manner; citations links, co-occurrences of keywords, bibliographic coupling of the journals, bibliographic coupling of the countries, bibliographic coupling of the authors, and bibliographic coupling of the publications can also be examined by this method.

The numbers and the quality of publications are among the most important assets produced by authors, institutions, journals, and countries. The bibliometrics employs publication patterns by using statistics and various kinds of quantitative analysis. Bibliometrics employs both descriptive methods such as looking at how many publications are there according to various criteria (e.g. authors, institutions, sources, countries), and evaluative methods, such as citation analysis, citation links, or bibliographic coupling to evaluate the influence of those publications or the complex relationships between those items. Descriptive methods are used to do comparisons, but citation analysis and bibliographic coupling enable us to see the impact of publications. Citation analysis and bibliographic coupling can also show the influence or relationship patterns of authors, journals, institutions, and countries (McBurney & Novak, 2002).

The Web of Science (WoS) is the leader in the scientific information and citation analysis. WoS contains data for researchers to employ for both descriptive and evaluative purposes. Social Sciences Citation Index (SSCI) is among the most important databases of WoS. This study used SSCI database to retrieve and analyze the publications on psychological capital in social sciences related disciplines.

### **Materials and Methods**

Web of Science was searched on June 2, 2018 by the researcher to retrieve all the publications on “psychological capital”. Into the "topic" field, the keyword of “psychological capital” was entered. By this way, the keyword of “psychological capital” was searched in the titles, abstracts, author keywords, and keywords plus of the publications. Only the "Social Sciences Citation Index (SSCI)" database was selected among the Citation Indexes in Web of Science Core Collection. Among the WoS-SSCI categories, only those disciplines were selected; Psychology, Education Educational Research, Behavioral Sciences, Business



Economics, Psychiatry, Social Work, Social Sciences Other Topics, Public Administration, Sociology, and Nursing.

The contents of the retrieved publications were checked if they really examine psychological capital or not. Only the relevant publications were included in this study.

"Bibliometric analysis", "bibliometric visualization methods" were used in this study. Bibliometric analysis is a kind of quantitative method that employs both some descriptive and evaluative methods to show the characteristics and research trend of publications (McBurney & Novak, 2002). Bibliometric visualizing methods are used to present a structural overview of a specific field by using various visualization techniques (Garfield, 2009). Some visualizing techniques have been designed and developed as computer software like CitNetExplorer and VOSviewer (Eck and Waltman, 2010; Eck and Waltman, 2014a; Eck and Waltman, 2014b; Eck, Waltman, & Glanzel, 2017). In this study, CitNet Explorer and VOS Viewer software were used to retrieve, analyze, and visualize the related information. Through those software; citations, citation links, co-occurrences of author keywords, bibliographic coupling of the journals, bibliographic coupling of the countries, bibliographic coupling of the authors, bibliographic coupling of the publications, and bibliographic coupling of the institutions were analyzed.

There were a total of 288 publications retrieved and analyzed in this study. According to the document types, most of those publications were articles (240 items, 83%), and the other were meeting abstracts (29 items, 10%), reviews (10 items, 3%), editorial materials (6 items, 2%), book chapters (2 items, 0.6%), and retracted publication (1 item, 0.3%).

Table 1. shows the publication records and percentages by publication years. According to the results, the first publication on psychological capital in SSCI database appeared in 2003 and each year has a different number of publication records. Starting from 2014, the number of publications increased significantly. As we are at the half of 2018, the number of publications for this year may possibly reach or exceed the ones at the former years.



Table 1. *Publication Records and Percentages by Publication Years*

<b>Publication Years</b>	<b>Publication Records</b>	<b>% of 288</b>
2018	27	9.375
2017	47	16.319
2016	47	16.319
2015	42	14.583
2014	40	13.889
2013	17	5.903
2012	23	7.986
2011	14	4.861
2010	6	2.083
2009	1	0.347
2008	16	5.556
2007	2	0.694
2006	2	0.694
2005	2	0.694
2004	1	0.347
2003	1	0.347

## Results

In this section, the results of the analyses extracted from CitNet Explorer and VOS Viewer software are presented. In this context, citations, citation links, co-occurrences of author keywords, bibliographic coupling of the journals, bibliographic coupling of the countries, bibliographic coupling of the authors, bibliographic coupling of the publications, and bibliographic coupling of the institutions are presented.

### Co-Occurrences of Author Keywords

Figure 1. shows the co-occurrences of author keywords. The minimum number of occurrences of a keyword was 5. Of the 647 terms, 23 met the threshold. For each of the 23 keywords, the total strength of the co-occurrence links with other keywords was calculated. The keywords with the greatest total link strength were selected. “Psychological capital” was the strongest one with 153 occurrences and 113 total link strength. For the others, the first



numbers show their occurrences and the second ones show their total link strength. “Positive organizational behavior” was the second (15; 29), “positive psychology” and “well-being” were the third and fourth ones (15; 21), “positive psychological capital” was the fifth one (15; 15). The other terms were; “work engagement” (14; 27), “job satisfaction” (12; 16), “psycap” (12; 13), “authentic leadership” (10; 17), “job performance” (9; 14), “hope” (8; 25), “stress” (8; 7), “optimism” and “resilience” (7; 25), “leadership” (7; 8), “performance” (6; 10), “burnout” (6; 9), “efficacy” (5; 19), “subjective well-being” (5; 8), “leader-member exchange” (5; 7), “China” and “psychological well-being” (5; 5). In those publications, “psychological capital” was the main concept, PsyCap is the contraction of it, “positive psychological capital” is the other name of this concept, “positive psychology” is the broader field from which PscCap was derived, and China was used in keywords as the name of a Country. Except for those keywords, the other concepts in this list show the most frequently studied concepts in the aspect of their relationships with psychological capital.

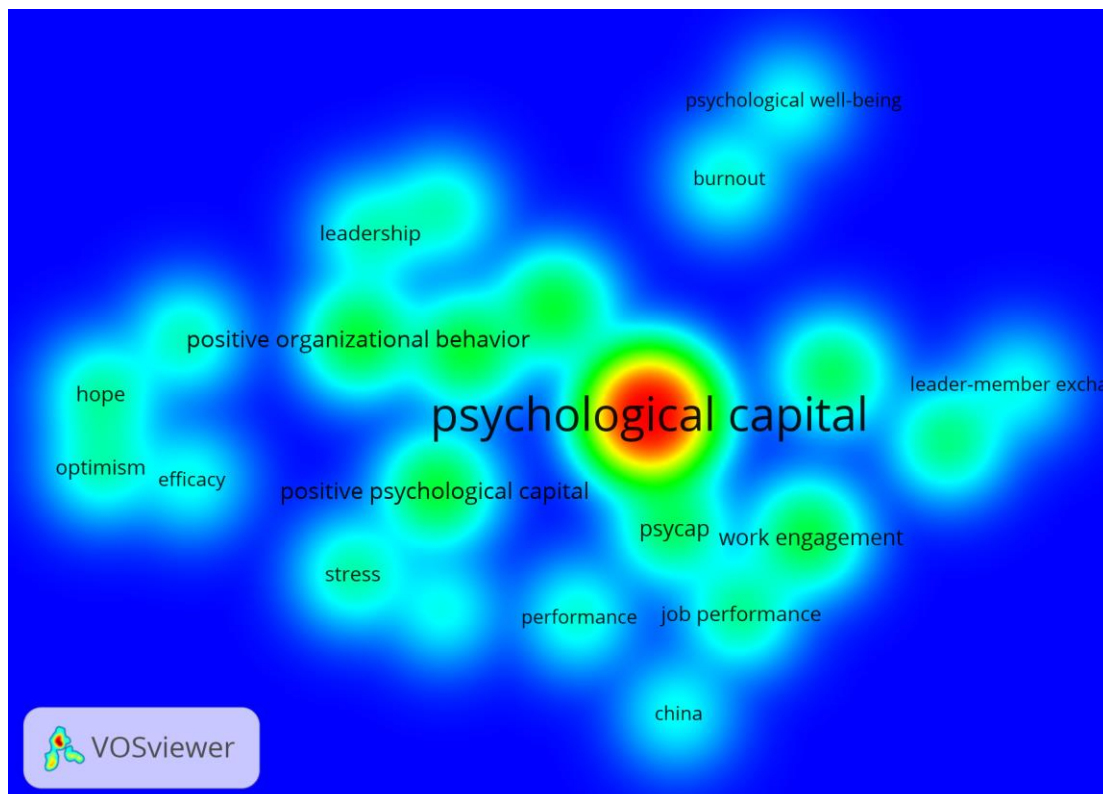


Figure 1. Co-occurrences of author keywords (density visualization)



### **Bibliographic Coupling of the Journals**

Figure 2. shows the bibliographic coupling of the journals with overlay visualization. The minimum number of publications of a journal was 5. Of the 128 sources, 11 met the thresholds. For each of the 11 journals, the total strength of the bibliographic coupling links with other journals was calculated. The journals with the greatest total strength link were selected. International Journal of Psychology had the greatest number of publications (27), but it had only 2 citations and had no (0) total link strength. So, this journal did not meet the criteria and was excluded, The number one was Journal of Leadership & Organizational Studies with 14 publications, 113 citations, and 5230 total link strength. Although the Journal of Organizational Behavior had the largest number of citations (906), it was in the second order in general with 13 publications and 3594 total link strength. For each journal, the first number shows the number of publications, the second one shows the number of citations, and the third one shows the total link strength. The other journals were; International Journal of Human Resource Management (8; 210; 3197), Human Resource Development Quarterly (6; 464; 2260), Journal of Management (5; 589; 2203), Journal of Managerial Psychology (7; 45; 2075), International Journal of Contemporary Hospitality Management (7; 51; 2004), Journal of Occupational Health Psychology (5; 276; 1937), Career Development International (6; 41; 1488), Frontiers in Psychology (6; 3; 1430), and Social Behavior and Personality (7; 16; 1194).

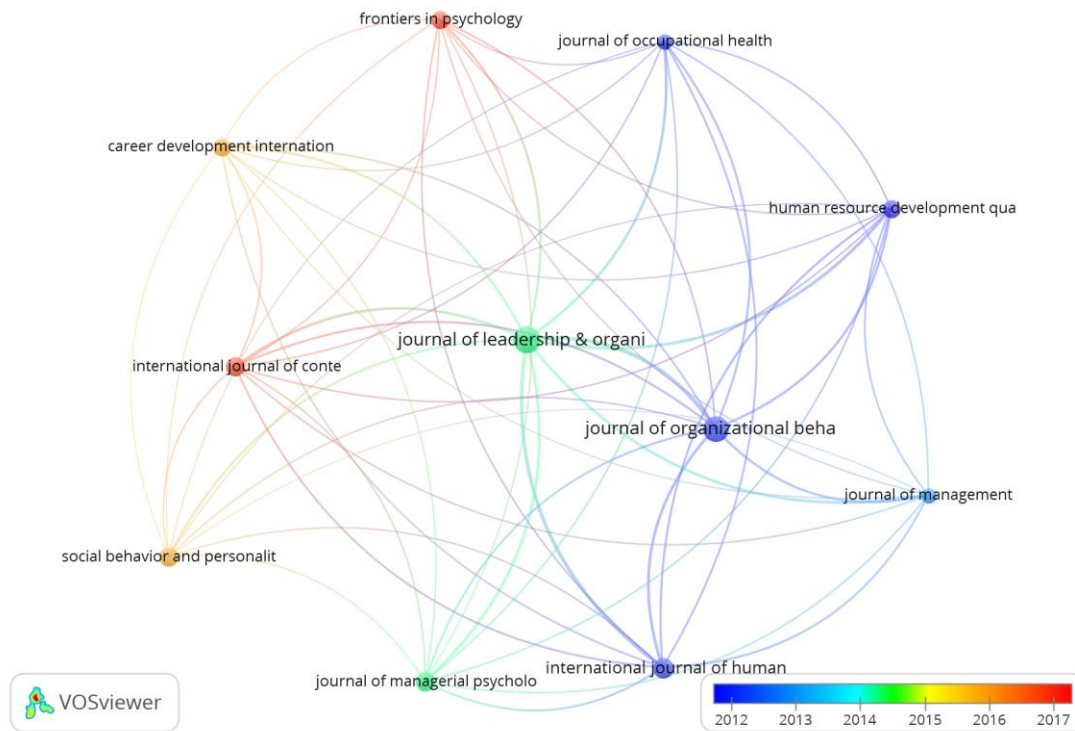


Figure 2. Bibliographic coupling of the sources (overlay visualization)

### Bibliographic Coupling of the Countries

Figure 3 shows the bibliographic coupling of the countries with overlay visualization. The minimum number of publications of a country was 5. Of the 40 countries, 14 met the thresholds. For each of the 14 countries, the total strength of the bibliographic coupling links with other countries was calculated. The countries with the greatest total link strengths were selected. Number one was the USA with 105 publications, 5469 citations, and 76021 total link strength. For the other countries, the first number is the number of publications, the second one is the number of citation, and the third one is total link strength. The other countries were; Peoples Republic of China (58; 405; 41404), Australia (25; 155; 21462), South Korea (20; 129; 20875), Taiwan (14; 35; 13917), Portugal (12; 173; 13315), Canada (13; 230; 13277), Spain (14; 46; 12026), Turkey (10; 77; 9819), Netherlands (10; 103; 9298), Italy (7; 18; 7305), England (7; 152; 7214), South Africa (9; 24; 7132), and India (8; 8; 5079).



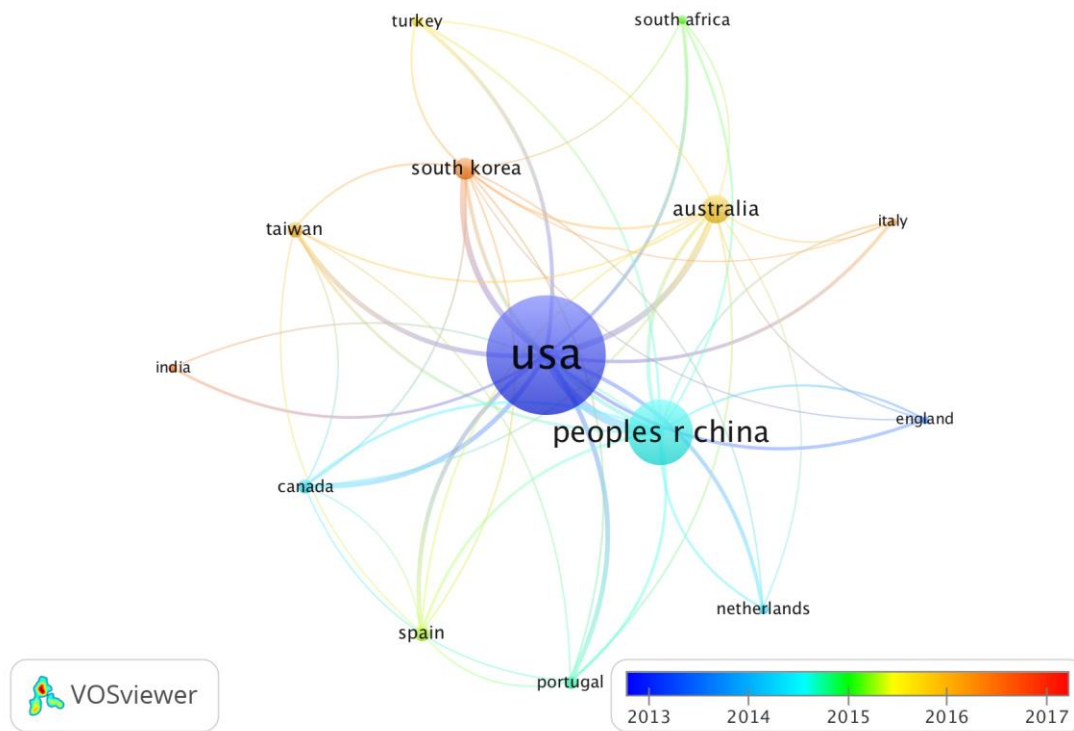


Figure 3. Bibliographic coupling of the countries (overlay visualization)

### Bibliographic Coupling of the Authors

Figure 4. shows the bibliographic coupling of the authors. The minimum number of publications for an author was 5. Of the 646 authors, 11 met the thresholds. For each of the 11 authors, the total strength of the bibliographic coupling links with other authors was calculated. The authors with the greatest total link strength were selected. The first author was Luthans, F. with 39 publications, 3985 citations, and 21528 total link strength. For each author, the first number is the number of publications, the second one is the number of citations, and the third one is total link strength. The other authors are shown consecutively; Avey, J. B. (19; 2874; 15556), Avolio, B. J. (10; 2365; 8710), Youssef, C. M. (6; 563; 6007), Peterson, S. J. (5; 408; 4332), Walumbwa, F. O. (5; 304; 3579), Newman, A. (5; 75; 2973), Karatepe, O. M. (5; 50; 1688), Wang, L. (6; 54; 1629), Brunetto, Y. and Farr-Wharton, R. (5; 3; 1408).

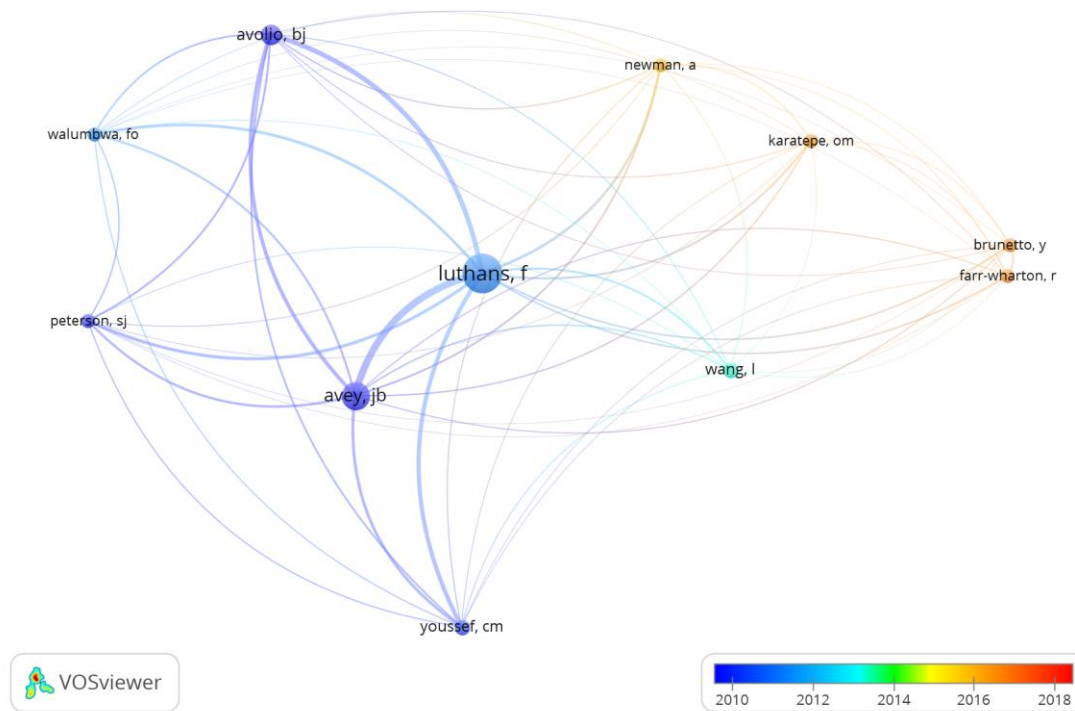


Figure 4. Bibliographic coupling of the authors (overlay visualization)

### Bibliographic Coupling and Citation Links of the Publications

Figure 5 shows the bibliographic coupling of the publications with overlay visualization. The minimum number of citations for each publication was 100. Of the 288 documents, 14 met the threshold. For each of the 14 publications, the total strength of the bibliographic coupling links with other publications was calculated. The documents with the greatest total link strength were selected. The number one was Luthans (2007b) with 364 citations and 362 total link strength. For each publication, the first number shows the number of citations and the second one shows total link strength. The other publications are listed consecutively; Luthans [2008b; (230; 331)], Luthans [2010; (187; 322)], Luthans [2008a; (257; 293)], Luthans [2007a; (632; 288)], Avey [2009; (202; 271)], Avey [2010b; (141; 261)], Avey [2008; (228; 218)], Avey [2010a; (162; 214)], Walumbwa [2011; (115; 179)], Avey [2011; (225; 168)], Avolio [2005; (791; 90)], Luthans [2004; (312; 62)], and Luthans [2006; (259; 61)]. Except for Avolio (2005), Luthans, F. is among the authors of all those 14 most important publications; and except for three ones, Avey is among the authors of all those publications.



The top article in this field is Luthans (2007b): Luthans, F., & Youssef, C. M. (2007). Emerging positive organizational behavior. *Journal of management*, 33(3), 321-349. In this review article, Luthans & Youssef (2007) examined selected representative positive traits (Big Five personality, core self-evaluations, and character strengths and virtues), positive state-like psychological resource capacities (efficacy, hope, optimism, resiliency, and psychological capital), positive organizations (drawn from positive organization scholarship), and positive behaviors (organizational citizenship and courageous principled action). They concluded with recommendations for future research and effective application.

The second strongest publication in this field is Luthans (2008b): Luthans, F., Avey, J. B., & Patera, J. L. (2008). Experimental analysis of a web-based training intervention to develop positive psychological capital. *Academy of Management Learning & Education*, 7(2), 209-221. In this research, they hypothesized that psychological capital with components of hope, self-efficacy, optimism, and resiliency, is a “state-like” construct and thus open to development. They analyzed whether such psychological capital can be developed through a highly focused, 2-hour web-based training intervention. Using a pretest, posttest experimental design (n = 187 randomly assigned to the treatment group and n = 177 to the control group), they found support that psychological capital can be developed by such a training intervention.

The third strongest publication in this field is Luthans (2010): Luthans, F., Avey, J. B., Avolio, B. J., & Peterson, S. J. (2010). The development and resulting performance impact of positive psychological capital. *Human resource development quarterly*, 21(1), 41-67. In this research, they hypothesized that psychological capital (PsyCap) is linked to positive outcomes at the individual and organizational level. They tried to improve the participants' PsyCap levels and evaluated its effect on their performance levels. They first conducted a pilot test of the PsyCap intervention (PCI) model with a randomized control group design. Next, they conducted a follow up study with a cross section of practicing managers to determine if following the training guidelines of the PCI caused the participants' performance to improve. Results showed that short training interventions such as PCI not only may be used to develop participants' psychological capital, but can also lead to an improvement in their on the job performance.

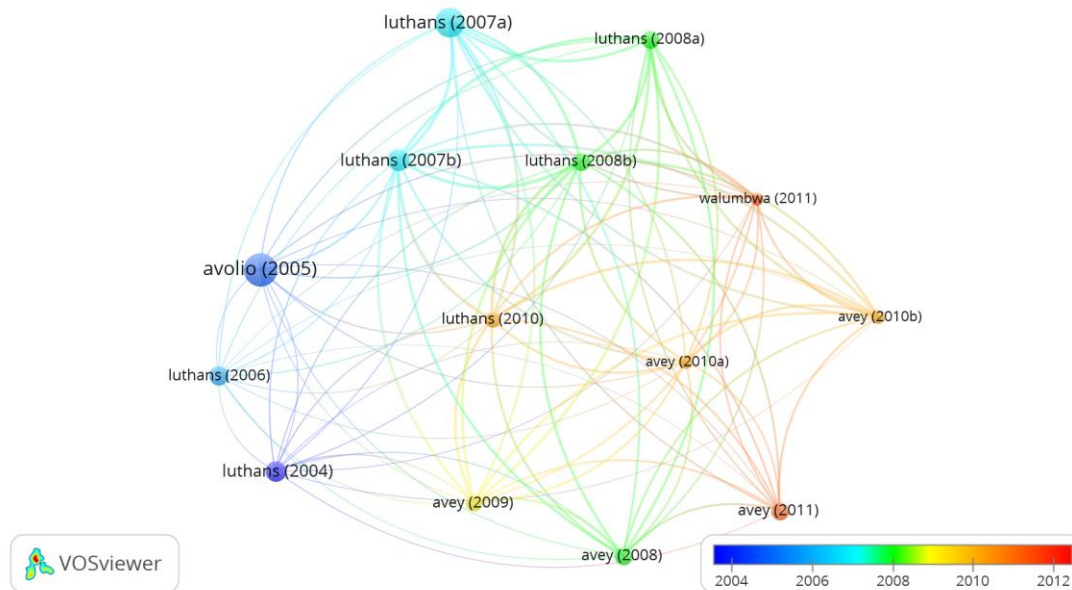


Figure 5. Bibliographic coupling of the publications (overlay visualization)

Notes: Avey (2008): Avey, Wernsing, & Luthans (2008);

Avey (2009): Avey, Luthans, & Jensen (2009);

Avey (2010a): Avey, Luthans, Smith, & Palmer (2010);

Avey (2010b): Avey, Luthans, & Youssef (2010);

Avey (2011): Avey, Reichard, Luthans, & Mhatre (2011);

Avolio (2005): Avolio & Gardner (2005);

Luthans (2004): Luthans & Youssef (2004);

Luthans (2006): Luthans, Avey, Avolio, Norman, & Combs (2006);

Luthans (2007a): Luthans, Avolio, Avey, & Norman (2007);

Luthans (2007b): Luthans & Youssef (2007);

Luthans (2008a): Luthans, Norman, Avolio, & Avey (2008);

Luthans (2008b): Luthans, F., Avey, J. B., & Patera, J. L. (2008).

Luthans (2010): Luthans, F., Avey, J. B., Avolio, B. J., & Peterson, S. J. (2010).

Walumbwa (2011): Walumbwa, F. O., Luthans, F., Avey, J. B., & Oke, A. (2011)

Figure 6 presents the citation links of the core publications. This figure shows more publications than it was in Figure 5 and shows the citation relationships among the ten core publications and the most important 40 publications. Each circle represents a publication. Publications are labeled by the last name of the first author. By default, only 40 most



frequently cited publications are shown in the figures. The horizontal location of a publication is determined by its citations related to the other publication. The vertical location is determined by the publication year. The curved lines show the relationship of citations. The cited publications should always be above the citing publication. If the transitive reduction option is selected, a citation link between two publications will not be shown if the publications are also connected through citation links via intermediate publications shown in the citation network visualization. If X cites Y and Z and if Y cites Z, the citation connection between X and Z is not included in the transitive reduction, since X and Z are already connected through Y. In the transitive reduction of this citation network, citations were kept only if they are necessary to preserve this network.

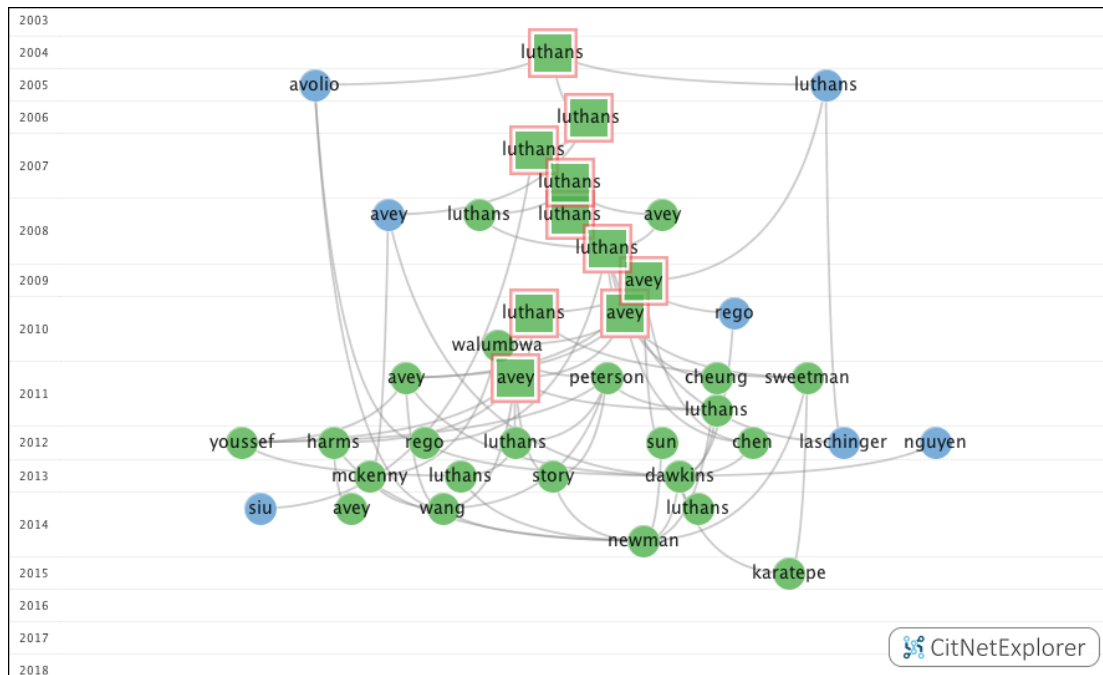


Figure 6. Citation links of the core publications with transitive reduction

Notes: The blue circles represent the publications that have minimum 5 citation links. Green circles represent the ones that have minimum 10 citation links. Green ones with red rectangles around them represent the most cited ten publications.

### Bibliographic Coupling of the Institutions

Figure 7 shows the bibliographic coupling of the institutions with overlay visualization. The minimum number of publications for an organization was 5. Of the 336 organizations, 15 met the thresholds. For each of the 15 organizations, the total strength of



the bibliographic coupling links with other organizations was calculated. The organizations with the greatest total link strength were selected. University of Nebraska (USA) was at the top of this list with 39 publications, 4602 citations, and 28052 total link strength. Central Washington University (USA) was the second with 17 publications, 2615 citations, and 18625 total link strength. The other universities are as follows (consecutively, first number shows the number of publications, second one shows the number of citations, and the third one shows the total link strength): Bellevue University (USA) (10; 637; 13436), Arizona State University (USA) (7; 573; 6964), University of Washington (USA) (6; 426; 6405), University of Nebraska Lincoln (USA) (5; 479; 6013), Monash University (Australia) (8; 89; 5087), Kyung Hee University (South Korea) (6; 61; 3818), Lingnan University (Hong Kong) (5; 90; 2915), Griffith University (Australia) (6; 7; 2593), Eastern Mediterranean University (Northern Cyprus) (5; 50; 2536), University of Melbourne (Australia) (5; 9; 2406), University of Western Ontario (Canada) (5; 143; 1886), University of Sunshine Coast (Australia) (5; 3; 1670), and Jinan University (China) (5; 7; 1210).

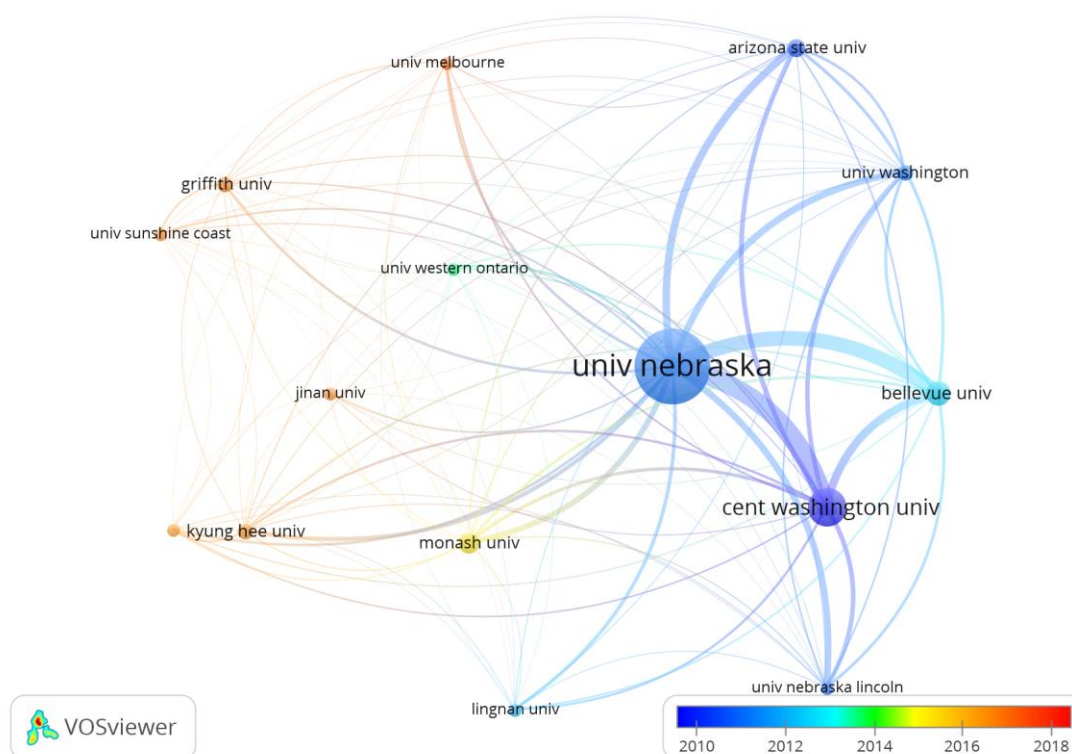


Figure 7. Bibliographic coupling of institutions (overlay visualization)



### Discussion and Conclusion

In this study, all the publications on psychological capital in SSCI database of WoS were retrieved and analyzed with bibliometric analysis approach. To visualize and further analyze the characteristics of those publications, CitNet Explorer and VOS Viewer software were used. Through those software; citations, citation links, co-occurrences of author keywords, bibliographic coupling of the journals, bibliographic coupling of the countries, bibliographic coupling of the authors, bibliographic coupling of the publications, and bibliographic coupling of the institutions were analyzed.

The analysis on the co-occurrences of author keywords showed that the researchers have taken up those concepts most frequently in the aspect of their relationships with “psychological capital”: “positive organizational behavior”, “well-being”, “work engagement”, “job satisfaction”, “authentic leadership”, “job performance”, “hope”, “stress”, “optimism”, “resilience”, “leadership”, “performance”, “burnout”, “efficacy”, “subjective well-being”, “leader-member exchange”, and “psychological well-being”.

Bibliographic coupling of the sources showed that the most important journal in this field was Journal of Leadership & Organizational Studies and the second one was Journal of Organizational Behavior. Although International Journal of Psychology had the greatest number of publications, it was excluded from this list because of the very low citations and it did not have total link strength. The other important journals were; International Journal of Human Resource Management, Human Resource Development Quarterly, Journal of Management, Journal of Managerial Psychology, International Journal of Contemporary Hospitality Management, Journal of Occupational Health Psychology, Career Development International, Frontiers in Psychology, and Social Behavior and Personality.

Bibliographic coupling of the countries showed that the most important country of origin in the field of psychological capital was the USA with a significant difference. The second one is China, as it was also among the most co-occurred keywords of those publications. The other countries were; Australia, South Korea, Taiwan, Portugal, Canada, Spain, Turkey, Netherlands, Italy, England, South Africa, and India.

Bibliographic coupling of the authors showed that the most important author in this field was Luthans, F. with a significant difference. He was the most prolific author, the most cited one, and had the greatest total link strength. The other important authors were Avey, J.



B., Avolio, B. J., Youssef, C. M., Peterson, S. J., Walumbwa, F. O., Newman, A., Karatepe, O. M., Wang, L., Brunetto, Y. and Farr-Wharton, R.

Bibliographic coupling of the publications showed that the most important publication in this field was Luthans & Youssef (2007), the second one was Luthans, Avey, & Patera (2008), and the third one was Luthans, Avey, Avolio, & Peterson (2010). Luthans, F. is among the authors of all the most important 14 publications in this field, except for one publication. Also, Avey, J. B. is among the authors of all those most important 14 publications, except for three publications. This finding corroborates with the former finding of the bibliographic coupling of the authors that the strongest author was Luthans, F. and the second strongest one was Avey, J. B.

Bibliographic coupling of the institutions showed that the top institution in this field was University of Nebraska (USA) with a significant difference. It employed the most prolific and the most cited authors, and had the greatest total link strength. The second one was Central Washington University (USA). It had also significantly stronger records than the remaining universities in this list. The other important institutions were Bellevue University (USA), Arizona State University (USA), University of Washington (USA), University of Nebraska Lincoln (USA), Monash University (Australia), Kyung Hee University (South Korea), Lingnan University (Hong Kong), Griffith University (Australia), Eastern Mediterranean University (Northern Cyprus), University of Melbourne (Australia), University of Western Ontario (Canada), University of Sunshine Coast (Australia), and Jinan University (China). Of those top 15 universities, there are six universities from the USA, four from Australia, one from South Korea, one from Northern Cyprus, one from Hong Kong, one from Canada, and one from China.

The results showed that the USA has an overwhelming superiority in the field of psychological capital in social sciences. The most important authors, the most important journals, the most important institutions, and the most important publications' authors and their affiliations are from the USA. Luthans, F. and his team, especially Avey, J. B. are the most important contributors of this concept. This concept was first introduced by Luthans, F. and his team in the USA by and it is still in progress in the USA by the same research team. However, there are other research teams from all around the world who work on psychological capital. Psychological capital has still been seen as an original concept to be researched and there are many sides of this concept to be understood deeply in different





disciplines of social sciences. This study is expected to shed a light upon the research trend and the progress of this concept.



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